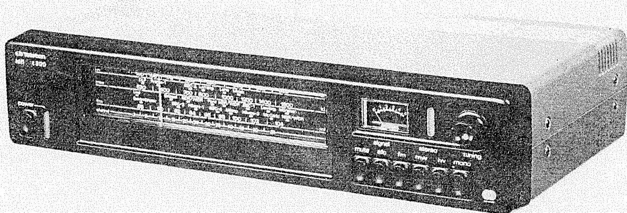
Teleton

SERVICE MANUAL

LW/MW/FM 3 Band Stereo Tuner

MODEL T-300



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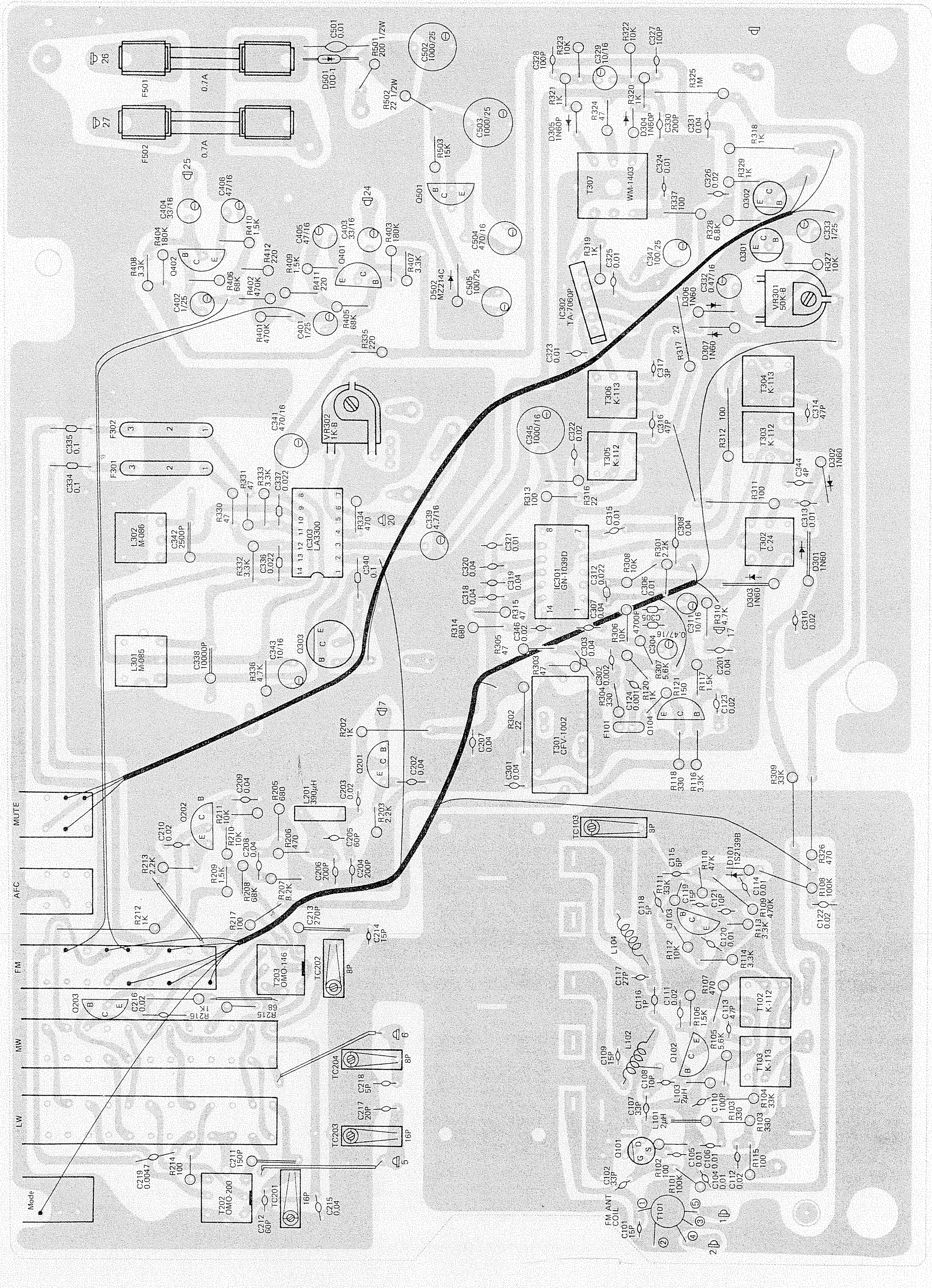
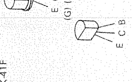
P. C. BOARD(TOP VIEW)


F501
F502
0.7A
0.7A
26
27
25
24
C501 0.01
R501 200 1/2W
D501 100-1
C502 1000/25
R502 22 1/2W
C503 1000/25
R503 15K
Q501
C504 470/16
C505 100/25
D502 MZ214C
C404 33/16
C406 47/16
R404 180K
Q402
R408 3.3K
R410 1.5K
C405 47/16
C403 33/16
R403 180K
Q401
R412 220
R409 1.5K
R411 220
R407 3.3K
R406 68K
R402 470K
C402 1/25
R401 470K
C401 1/25
R405 68K
R335 220
C341 470/16
VR302 1K B
F302
F301
C335 0.1
C334 0.1
R331 47
R333 3.3K
C337 0.022
R330 47
IC303 LA3300
R334 470
L302 M-086
C342 2500P
C339 47/16
R332 3.3K
C336 0.022
C340 0.1
L301 M-085
C338 10000P
R336 4.7K
C343 10/16
Q303
C328 100P
R323 10K
C329 10/16
R322 10K
C327 100P
R325 1M
R321 1K
R320 1K
D305 1N60P
R324 47
D304 1N60P
C330 200P
C331 0.04
R318 1K
T307 WM-1403
C324 0.01
C326 0.02
R329 1K
R337 100
Q302
R319 1K
C325 0.01
C347 100/25
R328 6.8K
C333 1/25
IC302 TA-7060P
C332 0.47/16
Q301
R327 10K
VR301 50K B
D306 1N60
D307 1N60
R317 22
C323 0.01
C317 3P
T306 K-113
T304 K-113
C345 1000/16
C322 0.02
C316 47P
C314 47P
T305 K-112
R312 100
T303 K-112
R316 22
C344 4P
D302 1N60
R313 100
C315 0.01
R311 100
C313 0.01
C321 0.01
C308 0.04
T302 C-24
IC301 GN-1039D
R301 2.2K
R308 10K
C320 0.04
C319 0.04
C312 0.022
D301 1N60
C318 0.04
R315 47
C306 0.01
D303 1N60
R314 680
C346 0.02
C307 0.04
R306 10K
C311 10/16
R310 4.7K
C310 0.02
R305 47
C303 0.04
C304 0.47/16
C305
R307 5.6K
R303 47
C302 0.002
C201 0.04
R117 1.5K
R304 330
R120 1K
R121 150
C123 0.02
C124 0.01
Q104
F101
T301 CFV-1002
R302 22
R118 330
R116 3.3K
C207 0.04
R309 33K
C301 0.04
R202 1K
Q201
C202 0.04
C209 0.04
R205 680
L201 390μH
C203 0.02
R211 10K
Q202
R210 10K
R203 2.2K
C210 0.02
C208 0.04
R206 470
C205 60P
TC103
8P
R213 2.2K
R209 1.5K
C206 200P
C204 200P
C115 5P
R110 47K
D101 1S2139B
R326 470
R208 68K
R207 8.2K
R111 33K
C119 10P
C121 10P
C114 0.01
R108 100K
R212 1K
C213 270P
C118 5P
Q103
R109 470K
R217 100
C214 15P
R113 33K
C122 0.02
L104
R112 10K
C120 0.01
R114 3.3K
T201 OMO-146
TC202
8P
C117 27P
C111 0.02
R107 470
T102 K-112
Q203
C216 0.02
R215 1K
R216 68
C116 1P
R106 1.5K
C113 47P
R105 5.6K
TC204
8P
6
C109 15P
L102
Q102
T103 K-113
C218 5P
C217 20P
C108 10P
L103 2μH
C107 33P
C110 100P
R104 33K
TC203
16P
5
L101 2μH
R103 330
R101 330
R115 330
Q101
C219 0.0047
R214 100
C211 150P
C102 33P
R102 100
C106 0.01
C105 0.01
C103 0.02
C112 0.02
T202 OMO-200
C201
16P
C215 0.04
R101 100K
C104 0.01
FM ANT COIL
C101 15P
T101
2
3
4
5
MUTE
AFC
FM
MW
LW
Mode



TRANSISTORS

Q101	2SK-19-GR or 2SK-33E or 2SK-41F
Q301 302 303	2SC536-F
Q102 201 Q202 203	2SC1359B or 2SC930E
	2SC1359C or 2SC930E
Q103	2SC930D
Q104	2SC693-F-U or 2SC1000-GR
Q401 402	
Q501	2SC1384 Q/R

ALIGNMENT INSTRUCTIONS

1. AM CIRCUIT

1–1 Test Equipment Required

AM–SSG	460 kHz 145 kHz ~ 355 kHz 510 kHz ~ 1620 kHz	Modulation 400 Hz, 30%
VTVM		
Oscilloscope		

1–2 IF Amplifier Alignment

a. Set the function selector to MW.

b. The modulated 460 kHz signal is connected to the external AM antenna jack (J102), for good measurement the signal should be kept at a low level consistent.

c. Connect the VTVM to the output connector.

d. Adjust the IF transformers T301, T302, for maximum indication.

1–3 LW Tuning Circuit

	SSG Setting	T-300 Setting	Adjustment
I	145 kHz	VC fully counter-clockwise	OSC coil T-202 for max. output
II	355 kHz	VC fully clockwise	OSC trimmer TC-201 for max. output
III	160 kHz	tune to 160 kHz	ANT coil T201-LW for max. output
IV	320 kHz	tune to 320 kHz	ANT trimmer TC-203 for max. output

Repeat these adjustment for several times .

1–4 MW Tuning Circuit

	SSG Setting	T-300 Setting	Adjustment
I	510 kHz	VC fully counter-clockwise	OSC coil T-203 for max. output
II	1630 kHz	VC fully clockwise	OSC trimmer TC-202 for max. output
III	600 kHz	tune to 600 kHz	ANT coil T201-MW for max. output
IV	1400 kHz	tune to 1400 kHz	ANT trimmer TC-204 for max. output

Repeat these adjustment for several times.

2. FM CIRCUIT

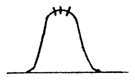
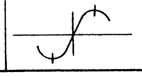
2–1 Test Equipment Required

FM–SSG	87.4 ~ 145 MHz, 400 Hz, 22.5 kHz deviation
FM–IF SWEEP GENERATOR	10.7 MHz ± 500 kHz
VTVM	
Oscilloscope	
STEREO SIGNAL GENERATOR	for MPX

2–2 IF Amplifier Alignment

a. Set the function selector to FM, FM AFC and FM Muting switch to off.

b. Adjust as follows.

	Adjustment	Input Connection	Output Connection	Wave Form
I	T102, T103 T303, T304 T305, T306	TP1	TP2	 Best V Curve
II	T307	TP1	TP3	 Best S Curve

2–3 FM Tuning Circuit

	SSG Setting	T-300 Setting	Adjustment
I	87.4 MHz	VC fully counter-clockwise	OSC coil L-104 for max. output
II	104.5 MHz	VC fully clockwise	OSC trimmer TC-103 for max. output
III	90 MHz	tune to 90 MHz	RF coil L-102 ANT coil T-101 for max. output
IV	102 MHz	tune to 102 MHz	RF trimmer TC-102 ANT trimmer TC-101 for max. output

Repeat these adjustment for several times.

2–4 MPX Circuit

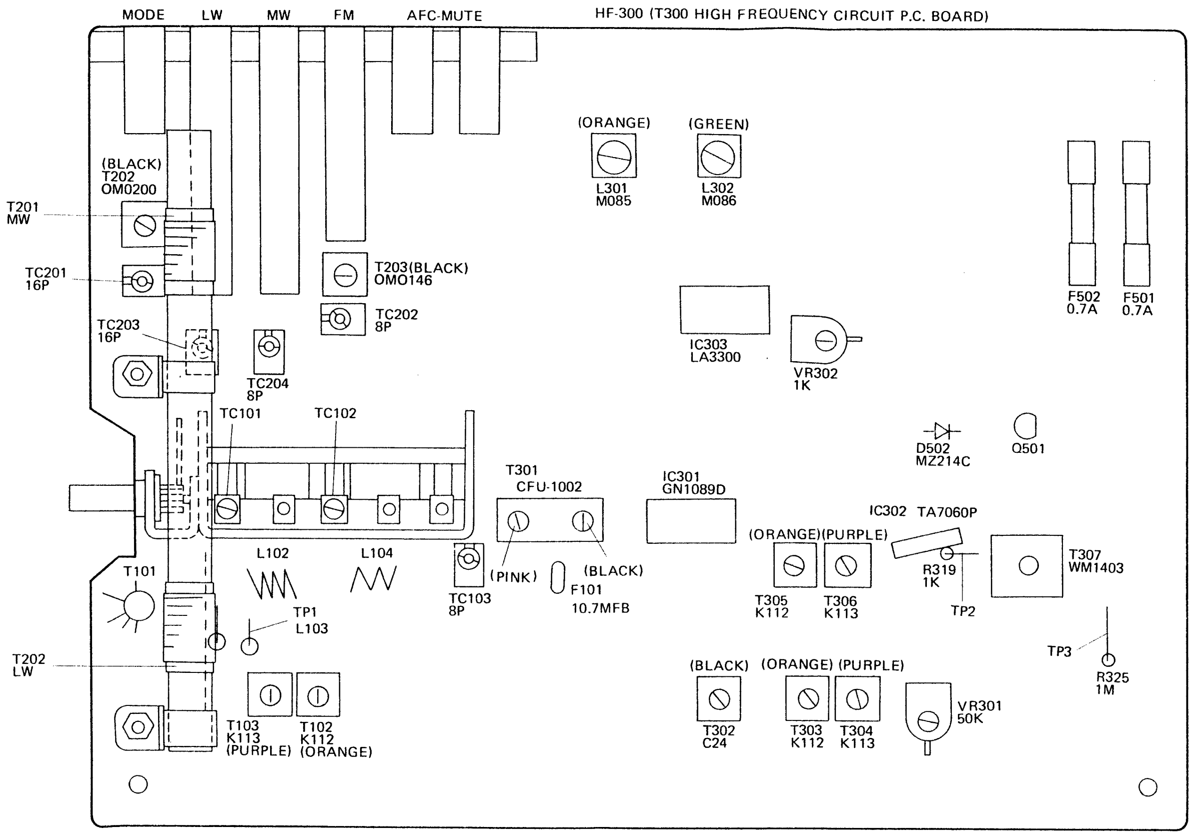
a. Alignment of stereo modulator

19 kHz Pilot signal : 7.5 kHz (10%)
(L + R) Main signal : 67.5 kHz (90%)

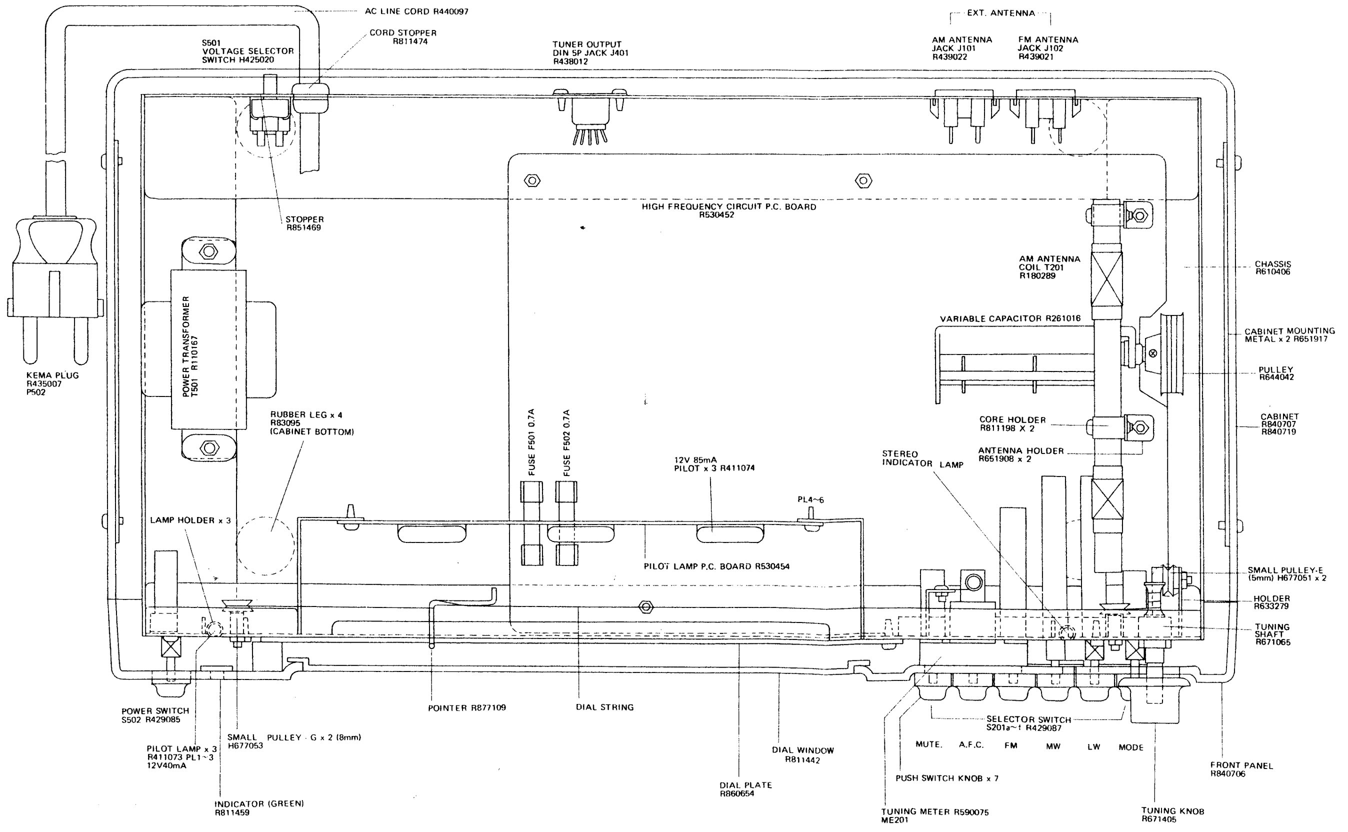
b. Separation Alignment

Adjust L301 core to light stereo indicator lamp, after tuning maximum output with (L + R) +19 kHz modulated signal.
Adjust L301 and L302 cores for max. output in L side with (L – R) +19 kHz modulated signal.
Observing waveform on oscilloscope with L +19 kHz modulation, change modulation to R + 19kHz. If the waveform is normal (no clip, no small peak) adjust VR302 (1KΩ) to min. output.
Next, adjust for R side output min. with L + 19kHz modulation.
When the difference of L and R separation is move than 6dB tune L301 finely to lessen the difference of separation between L and R.
After alignment completed, fix L301, L302, with locking paint.

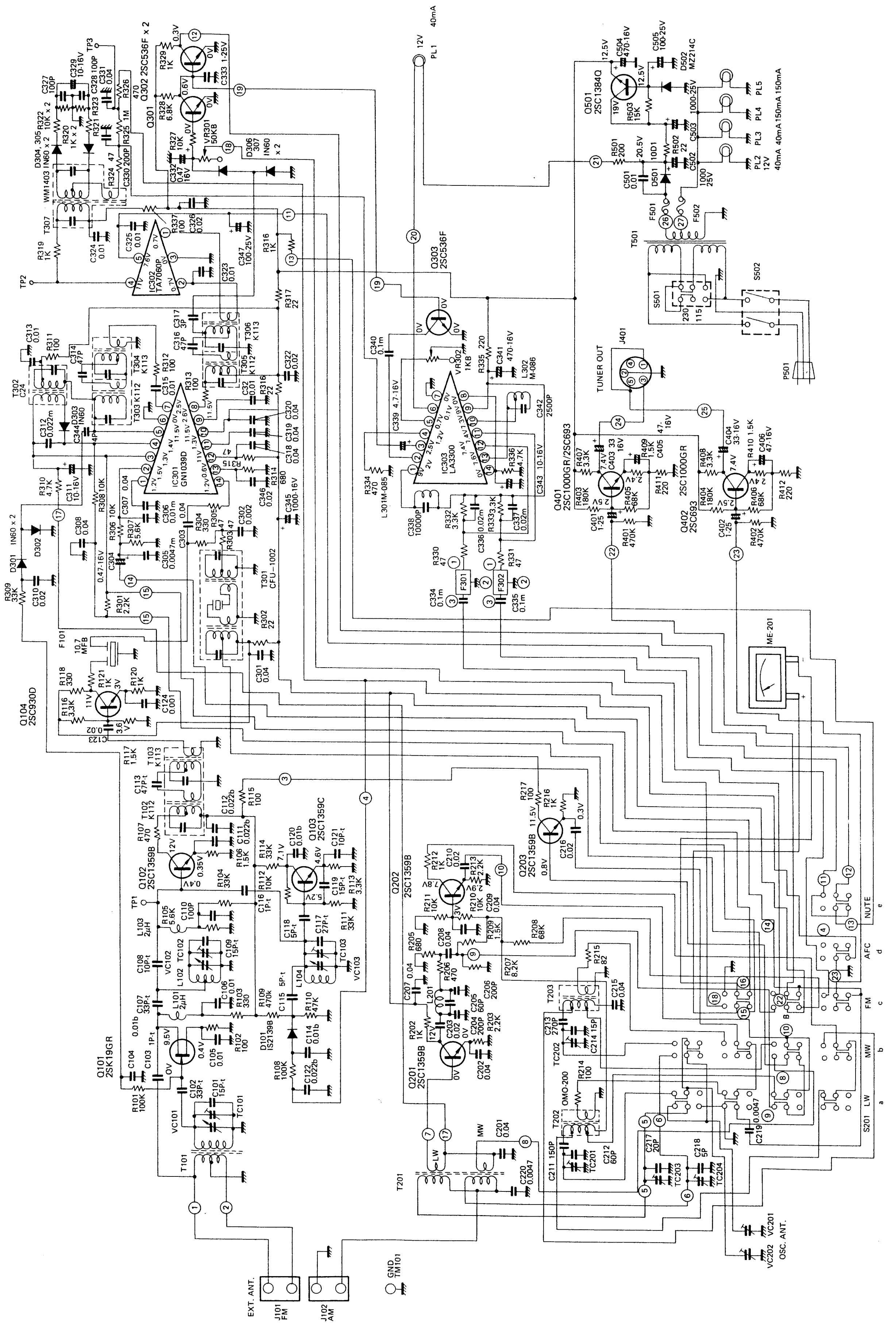
ALIGNMENT POINTS


MODE
LW
MW
FM
AFC-MUTE
HF-300 (T300 HIGH FREQUENCY CIRCUIT P.C. BOARD)
(BLACK) T202 OM0200
T201 MW
TC201 16P
TC203 16P
T203(BLACK) OMO146
TC202 8P
TC204 8P
TC101
TC102
T101
L102
L104
TP1
L103
T202 LW
T103 K113 (PURPLE)
T102 K112 (ORANGE)
TC103 8P
T301 CFU-1002
(PINK)
(BLACK)
F101 10.7MFB
(ORANGE)
L301 M085
(GREEN)
L302 M086
IC303 LA3300
VR302 1K
F502 0.7A
F501 0.7A
D502 MZ214C
Q501
IC301 GN1089D
IC302 TA7060P
(ORANGE)(PURPLE)
T305 K112
T306 K113
R319 1K
TP2
T307 WM1403
TP3
R325 1M
(BLACK) (ORANGE) (PURPLE)
T302 C24
T303 K112
T304 K113
VR301 50K

COMPONENT DIAGRAM(TOP VIEW)


AC LINE CORD R440097
CORD STOPPER R811474
S501 VOLTAGE SELECTOR SWITCH H425020
TUNER OUTPUT DIN 5P JACK J401 R438012
EXT. ANTENNA
AM ANTENNA JACK J101 R439022
FM ANTENNA JACK J102 R439021
STOPPER R851469
HIGH FREQUENCY CIRCUIT P.C. BOARD R530452
AM ANTENNA COIL T201 R180289
CHASSIS R610406
VARIABLE CAPACITOR R261016
CABINET MOUNTING METAL x 2 R651917
PULLEY R644042
KEMA PLUG R435007 P502
POWER TRANSFORMER T501 R110167
RUBBER LEG x 4 R83095 (CABINET BOTTOM)
FUSE F501 0.7A
FUSE F502 0.7A
12V 85mA PILOT x 3 R411074
CORE HOLDER R811198 X 2
ANTENNA HOLDER R651908 x 2
CABINET R840707 R840719
STEREO INDICATOR LAMP
PL4~6
LAMP HOLDER x 3
PILOT LAMP P.C. BOARD R530454
SMALL PULLEY-E (5mm) H677051 x 2
HOLDER R633279
TUNING SHAFT R671065
POWER SWITCH S502 R429085
POINTER R877109
DIAL STRING
SMALL PULLEY · G x 2 (8mm) H677053
PILOT LAMP x 3 R411073 PL1~3 12V40mA
INDICATOR (GREEN) R811459
DIAL WINDOW R811442
DIAL PLATE R860654
SELECTOR SWITCH S201a~f R429087
MUTE. A.F.C. FM MW LW MODE
PUSH SWITCH KNOB x 7
TUNING METER R590075 ME201
FRONT PANEL R840706
TUNING KNOB R671405

SCHEMATIC DIAGRAM


IC301 GN1039D
IC302 TA7060P
IC303 LA3300
Q101 2SK19GR
Q102 2SC1359B
Q103 2SC1359C
Q104 2SC930D
Q201 2SC1359B
Q202 2SC1359B
Q203 2SC1359B
Q301 Q302 2SC536F x 2
Q303 2SC536F
Q401 2SC1000GR/2SC693
Q402 2SC693 2SC1000GR
Q501 2SC1384Q
ME 201
TUNER OUT
J401
S501
S502
P501
T501
PL1 12V 40mA
PL2 PL3 12V 40mA
PL4 PL5 40mA 150mA
S201 LW MW FM AFC MUTE
J101 FM EXT. ANT.
J102 AM
GND TM101
OSC. ANT.

SPARE PARTS LIST

(Standard Parts Resistors, Capacitors are not listed here.)

Ref. No.	Part No.	Description
A. Chassis Parts		
	R610406	Chassis
S502	R429085	Power Switch (push type)
PL2, 3	R411073	Pilot Lamp (12V 40mA)
PL1	R411069	Pilot Lamp (12V 40mA)
	H677053	Small Pulley – G
	R530454	Pilot Lamp P. C. Board
PL4, 5, 6	R411074	Pilot Lamp (12V 85mA)
	R860654	Dial Plate
ME201	R590075	Tuning Meter
	R671065	Tuning Shaft
	R633279	Small Pulley Holder
	H677051	Small Pulley – E
T501	R110167	Power Transformer
HF-300	H810231	P. C. Board Spacer (5mm)
	R676202A	P. C. Board Spacer (6.5mm)
T201	R180289	AM Antenna Coil
	R811198	Core Holder
	R651908	Antenna Holder
	R644042	Pulley
	R877109	Pointer
	R440095	AC Line Cord
	R811474	Cord Stopper
P501	R435007	KEMA Plug
S501	H425020	Slide Switch
J401	R438012	DIN 5P Jack
J101	R439021	AM Antenna Jack
J102	R439022	FM Antenna Jack
TM101	R921022	GND Screw
B. Cabinet		
	R840707	Upper Cabinet
	R840719	Lower Cabinet
	R651917	Cabinet Mounting Metal
	R830595	Rubber Leg
	R811442	Dial Window
	R871382	Tuning Knob
	R811444	Indicator Cover (Orange)
	R811459	Indicator Cover (Green)
	R871405	Push Switch Knob
	R840706	Front Panel
	R811464	Cushion
	R885778	Inside Carton
	R885779	Master Carton
	R890656A	AC Line Cord Caution Label
C. P. C. Board		
HF-300	R530452	High Frequency Circuit P. C. Board
Q101		FET 2SK-19GR or 2SK-33E or 2SK-41F
Q102, 201 202, 203		Transistor 2SC1359B or 2SC930E
Q103		Transistor 2SC1359C or 2SC930E
Q104		Transistor 2SC930D
Q301, 302, 303		Transistor 2SC536F
Q401, 402		Transistor 2SC673F-U or 2SC1000GR
Q501		Transistor 2SC1384Q/R
D304, 305		Diode IN60P
D301, 302 303, 306 307		Diode IN60
D501		Silicon Diode 10D1 or IN4002
D101		Vari-Cap IS2139B
D502		Zener-Diode MZ214C
IC301		IC GN-1039D
IC302		IC TA7060P
IC303		IC LA3300
F301, 302	R290011	38 kHz Twin Filter
	H430028	Fuse Holder
F501, 502	H412001	Fuse 0.7A
L102		FM RF Coil
L104		FM OSC Coil
T101		FM Antenna Trans.
VC101, 102, 103 104, 105	R2601016	Variable Capacitor
L101, 103	R144001	Choke Coil
TC103, 202, 204	R213006	Trimmer Capacitor 1T8M
TC201, 203	R213014	Trimmer Capacitor 1T16M
S201 a ~ f	R429087	Selector Switch (push type)
T203	R160146	MW OSC Coil OMO-146
T202	R160200	LW OSC Coil OMO-200
F101	R153011	FM Ceramic Filter 10.7 MFB
T301	R153003	AM Ceramic Filter CFU-1002
T302	R151031	AF IFT C-24
T102, 303, 305	R15124	FM IFT K-112
T103, 304, 306	R15125	FM IFT K-113
T307	R151057	FM IFT WM-1403
VR301	R382039	Semi-Fixed Resistor 50 kΩB
VR302	R382040	Semi-Fixed Resistor 1 kΩB
L301	R151085	19 kHz Coil M-085
L302	R151086	38 kHz Coil M-086